

# Stefan Bernhard

**Current Position:** Assistant Professor at Princeton University (since 2002)

**Current Address:** Princeton University  
Department of Chemistry  
Frick Laboratory  
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## Research Interests:

Synthesis of novel supramolecular systems, polymers, and extended structures for materials and solar energy conversion applications.

## Education:

**1998-2002** Postdoctoral Research Associate at Cornell University

Research Director: Prof. Héctor D. Abruña  
Synthesis, Electrochemistry, and Surface Manipulation of  
Redox Active Dendrimers and Polymers  
Electrochromic and Light Emitting Devices

**1996-1998** Postdoctoral Research Associate at Los Alamos National Laboratory

Research Director: Jon R. Schoonover  
Time-Resolved Raman and IR Spectroscopy  
SERS-Sensors

**1993-1996** Ph.D. Thesis at the University of Fribourg

Supervisor: Prof. Dr. Peter Belser:  
Synthesis and Properties of Adamantane Bridged Diimine Ligands and their  
Ru(II) and/or Os(II)-Complexes

**1988-1993** Diploma in Chemistry

University of Fribourg, Switzerland  
*Main Branch:* Physical Chemistry  
Diploma Thesis (Prof. Th. Bally):  
Electronic Structure, Spectroscopy, And Photochemistry Of  
Tricyclo[4.2.0.0<sup>2,5</sup>]octadiene Radical Cations.

*Second Branch: Inorganic Chemistry*  
Diploma Thesis (Prof. A. von Zelewsky):  
Chiral Complexes With New Cyclometallating Pinenepyridine Ligands.

**1985-1988**    **Diploma in Chemical Engineering**  
School of Engineering, Burgdorf, Switzerland

**1982-1985**    **Apprenticeship Laboratory Technician**  
Suchard-Tobler Chocolates, Bern, Switzerland

## **Research Expertise:**

Organic synthesis of supramolecular ligand molecules • pyridine and polypyridine chemistry • Monolayer preparation and characterization (IR, SERS, ellipsometry) • Electrochemistry • Preparation of photoactive coordination compounds • Laser spectroscopy : Time resolved emission, absorption, IR, Raman spectroscopy • DFT calculations • High-throughput screening of photo-catalytic reactions • Circular polarized luminescence spectroscopy

## **Teaching Experience:**

- “The Chemistry of Chocolate” Freshman seminar FRS 124, 2006-2008, Princeton University
- Inorganic Chemistry CHM 407, 2002-2006, 2008 Princeton University
- Topics in Inorganic Chemistry: Chemistry and Light CHM 524, 2003&2007, Princeton University
- Laboratory teaching assistant "Inorganic and Analytical Chemistry for Advanced Students" University of Fribourg, 1994-1996
- Mentor laboratory technician apprentice, University of Fribourg, 1993-1996
- Teacher "Preparation for the School of Engineering", Feusi Schule, Bern, 1988-1989
- Laboratory Teacher "Introductory course for laboratory technician apprentice", Bern, 1988

## **Honors and Awards:**

- Graduate Mentoring Award, Princeton University, 2006
- National Science Foundation CAREER Award 2005
- Dreyfus New Faculty Award 2002
- Swiss National Science Foundation Fellowship for Advanced Researchers 1998-2001
- Novartis Foundation Fellowship 1997-1998
- Swiss National Science Foundation Postdoctoral Fellowship 1996-1997

## Current and Previous Funding

<b>Sponsor</b>	<b>Title</b>	<b>Support</b>	<b>Duration</b>
National Science Foundation	Princeton MRSEC (transferable)	\$ 372,000.00	2008-2014
National Science Foundation	PCCM Seed Grant (with Lynn Loo)	\$ 82,000.00	2007-2008
National Science Foundation	PCCM Seed Grant (with Jeff Schwartz)	\$ 54,000.00	2007-2008
PRISM	SEED Grant	\$ 30,000.00	2007
National Science Foundation	MRSEC Seed Grant (With Craig Arnold, MAE)	\$ 124,000.00	2006-2007
National Science Foundation (with George Malliaras (PI, Cornell), Michael Kaplan, Leonard Soltzberg, Velda Goldberg (Simmons University))	Fundamental Studies and Device Applications of Ionic Transition Metal Complexes DMR- 0605621	\$946,770.00 Princeton Subcontract: \$269,000.00	2006-2009
National Science Foundation	CAREER Award CHE-0449755	\$ 566,000.00	2005-2010
National Science Foundation	MRSEC Seed Grant (With A. Selloni)	\$ 90,000.00	2004-2005
Camille and Henry Dreyfus Foundation	New Faculty Award	\$ 40,000.00	2002-2007

## Current and Former Students/Postdocs

### Former Postdocs:

- Jonas I. Goldsmith (Assistant Professor, Bryn Mawr College)
- Eli Zysman-Colman (Assistant Professor, Université de Sherbrooke)

### Current Postdocs:

- Johanna Hummel (on DFG Fellowship)
- Stefan Metz (on DFG Fellowship)

### Former Graduate Students:

- Angela L. Sauers Ph.D. 2006 (Temporary Assistant Professor and Franklin Fellow, University of Georgia, Athens)
- Michael S. Lowry Ph.D. 2006 (Central Research, Air Products and Chemicals, Allentown, PA)
- Karl D. Oyler Ph.D. 2007 (Postdoc, Pennsylvania State University)
- Frederick J. Coughlin, Ph.D. 2008
- Jingjing Wang Ph.D. defense Spring 2009 (Arbor Vita Corporation, CA)

### Current Graduate Students:

- Leonard L. Tinker, GS04
- Eric D. Cline, GS05
- Neal D. McDaniel, GS05
- Dustin M. Jenkins, GS06
- Brian F. DiSalle, GS07

### Former Undergraduate Students:

- William R. Hudson 05'
- Samantha E. Adamson 06'
- Sami W. Mardam-Bey 06'
- Monica Saumoy 07'
- Courtney K. Smith 07'
- Michael S. Westrol 07'
- Peter N. Curtin 08'
- Christina L. Herrera 08'

## List of References

**Thomas E. Mallouk** Tel: 814-865-6553 Fax: 814-865-3314  
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The Pennsylvania State University  
University Park, PA 16802  
tom@chem.psu.edu

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Northwestern University  
Department of Chemistry and Materials Research Center  
Evanston, IL 60208  
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**Héctor D. Abruña** – Tel: 607-255-4720 Fax: 607-255-4137  
Department of Chemistry and Chemical Biology  
Cornell University Baker Laboratory  
Ithaca, NY 14853-1301  
hda1@cornell.edu

# Publications

PP: Princeton Publication

54. PP	Tinker, Leonard L.; McDaniel, Neal D.; Bernhard, Stefan <b>Progress towards solar-powered homogeneous water photolysis</b> <i>J. Mater. Chem.</i> , (2009), available online
53. PP	Cline, Eric D.; Adamson, Samantha E.; Bernhard, Stefan; <b>Homogeneous Catalytic System for Photoinduced Hydrogen Production Utilizing Iridium and Rhodium Complexes</b> <i>Inorganic Chemistry</i> (2008), 47(22), 10378–10388.
52. PP	Walters, Robert S.; Kraml, Christina M.; Byrne, Neal; Ho, Douglas M.; Qin, Qian; Coughlin, Frederick J.; Bernhard, Stefan; Pascal, Robert A.; <b>Configurationally Stable Longitudinally Twisted Polycyclic Aromatic Compounds</b> <i>Journal of the American Chemical Society</i> (2008), 130, 16435–16441.
51. PP	Sartorel, Andrea; Carraro, Mauro; Scorrano, Gianfranco; De Zorzi, Rita; Geremia, Silvano; McDaniel, Neal D.; Bernhard, Stefan; Bonchio, Marcella <b>Polyoxometalate Embedding of a tetra-Ruthenium(IV)-oxo-core by Template-Directed Metalation of <math>[\gamma\text{-SiW}_{10}\text{O}_{36}]^{8-}</math>: A Totally Inorganic Oxygen Evolving Catalyst</b> <i>Journal of the American Chemical Society</i> (2008), 130, 5006-5007.
50. PP	Tinker, Leonard L.; McDaniel, Neal D.; Cline, Eric D.; Bernhard, Stefan <b>Synthesis of Heteroleptic Cyclometalated Iridium(III) Complexes</b> <i>Inorganic Syntheses</i> (2008), accepted.
49. PP	Coughlin, Frederick; Oyler, Karl; Pascal, Robert; Bernhard, Stefan <b>Determination of Absolute Configuration of Chiral Hemicage Metal Complexes Using Time-Dependent Density Functional Theory</b> <i>Inorganic Chemistry</i> (2008), 47(3), 974-979.
48. PP	Coughlin, Frederick; Westrol, Michael; Oyler, Karl; Byrne, Neal; Kraml, Christina; Zysman-Colman, Eli; Lowry, Michael; Bernhard, Stefan <b>Synthesis, Separation, and Circularly Polarized Luminescence Studies of Enantiomers of Iridium(III) Luminophores</b> <i>Inorganic Chemistry</i> (2008), 47(6), 2039-2048.
47. PP	Zysman-Colman, Eli; Slinker, Jason; Parker, Jeffrey; Malliaras, George; Bernhard, Stefan <b>Improved turn-on times of light-emitting electrochemical cells</b> <i>Chemistry of Materials</i> , (2008), 20, 388–396.
46. PP	McDaniel, Neal D.; Coughlin, Frederick J.; Tinker, Leonard L.; Bernhard, Stefan <b>Cyclometalated Iridium(III) Aquo Complexes: Efficient and Tunable Catalysts for the Homogeneous Oxidation of Water</b> <i>Journal of the American Chemical Society</i> (2008), 130, 210-217.
45. PP	Tinker, Leonard L.; McDaniel, Neal D.; Curtin, Peter N., Smith, Courtney K.; Ireland, Michael J.; Bernhard, Stefan <b>Visible Light Induced Catalytic Water Reduction without an Electron Relay</b> <i>Chemistry--A European Journal</i> (2007), 13, 8726 – 8732.
44. PP	Qin, Xiao; Ju, Yiguang; Bernhard, Stefan; Yao, Nan <b>Europium-doped yttrium silicate nanophosphors prepared by flame synthesis</b> <i>Materials Research Bulletin</i> (2007), 42, 1440-1449.
43. PP	Slinker, Jason D. ; Rivnay, Jonathan; Moskowitz, Joshua S. ; Parker, Jeffrey B. ; Bernhard, Stefan; Abruña, Héctor D.; Malliaras, George G. <b>Electroluminescent devices from ionic transition metal complexes</b> <i>J. Mater. Chem.</i> , (2007), 17, 2976 – 2988.
42. PP	Wang, Jingjing; Oyler, Karl D.; Bernhard, Stefan <b>Synthesis and characterization of hemi-cage 8-hydroxyquinoline chelates with enhanced electrochemical and photophysical properties</b> <i>Inorganic Chemistry</i> , (2007), 46, 5700-5706.
41. PP	Oyler, Karl D.; Coughlin, Frederick J.; Bernhard, Stefan. <b>Controlling the Helicity of 2,2'-Bipyridyl Ruthenium(II) and Zinc(II) Hemicage Complexes.</b> <i>Journal of the American Chemical Society</i> (2007), 129(1), 210-217.
40. PP	Lu, Jun; Ho, Douglas M.; Vogelaar, Nancy J.; Kraml, Christina M.; Bernhard, Stefan; Byrne, Neal; Kim, Laura R.; Pascal, Robert A., Jr. <b>Synthesis, Structure, and Resolution of Exceptionally Twisted Pentacenes.</b> <i>Journal of the American Chemical Society</i> (2006), 128(51), 17043 - 17050.

39. PP	Lowry, Michael S.; Bernhard, Stefan. <b>Synthetically Tailored Excited-States: Phosphorescent, Cyclometalated Iridium(III) Complexes and their Applications.</b> <i>Chemistry--A European Journal</i> (2006), 12(31), 7970-7977.
38. PP	Qin, Xiao; Ju, Yiguang; Bernhard, Stefan; Yao, Nan; <b>Flame Synthesis of Y<sub>2</sub>O<sub>3</sub>: Eu Nanophosphors using Ethanol as Precursor Solvent.</b> <i>Journal of Materials Research</i> , (2005), 20(11), 2960-2968.
37. PP	Lowry, Michael S.; Goldsmith, Jonas I.; Slinker, Jason D.; Pascal, Robert A., Jr.; Malliaras, George G.; Bernhard, Stefan <b>Single-layer electroluminescent devices and photo-induced hydrogen production from an ionic iridium(III) complex.</b> <i>Chemistry of Materials</i> , (2005), 17(23), 5712-5719.
36. PP	Slinker, Jason D.; Koh, Cheong Y.; Malliaras, George G.; Lowry, Michael S.; Bernhard, Stefan. <b>Green electroluminescence from an ionic iridium complex.</b> <i>Applied Physics Letters</i> (2005), 86(17), 173506/1-173506/3
35. PP	Parker, Sara T.; Slinker, Jason D.; Lowry, Michael S.; Cox, Marshall P.; Bernhard, Stefan; Malliaras, George G. <b>Improved Turn-on Times of Iridium Electroluminescent Devices by Use of Ionic Liquids.</b> <i>Chemistry of Materials</i> (2005), 17(12), 3187-3190.
34. PP	Goldsmith, Jonas I.; Hudson, William R.; Lowry, Michael S.; Anderson, Timothy H.; Bernhard, Stefan. <b>Discovery and High-Throughput Screening of Heteroleptic Iridium Complexes for Photoinduced Hydrogen Production.</b> <i>Journal of the American Chemical Society</i> (2005), 127(20), 7502-7510.
33.	Tatini, Radhakrishna; Sadik, Omowunmi; Bernhard, Stefan; Abruña, Héctor. <b>Direct resolution of chiral 'pineno' fused terpyridyl ligands on amylose based chiral stationary phase using long chain alcohol modifiers.</b> <i>Analytica Chimica Acta</i> (2005), 534(2), 193-198.
32. PP	Sauers, Angela L.; Ho, Douglas M.; Bernhard, Stefan. <b>Synthesis and Characterization of Highly Conjugated, Chiral Bridging Ligands.</b> <i>Journal of Organic Chemistry</i> (2004), 69(25), 8910-8915.
31. PP	Lowry, Michael S.; Hudson, William R.; Pascal, Robert A., Jr.; Bernhard, Stefan. <b>Accelerated Luminophore Discovery through Combinatorial Synthesis.</b> <i>Journal of the American Chemical Society</i> (2004), 126(43), 14129-14135.
30. PP	Fantacci, Simona; De Angelis, Filippo; Wang, Jingjing; Bernhard, Stefan; Selloni, Annabella. <b>A Combined Computational and Experimental Study of Polynuclear Ru-TPPZ Complexes: Insight into the Electronic and Optical Properties of Coordination Polymers.</b> <i>Journal of the American Chemical Society</i> (2004), 126(31), 9715-9723.
29. PP	Slinker, Jason D.; Gorodetsky, Alon A.; Lowry, Michael S.; Wang, Jingjing; Parker, Sara; Rohl, Richard; Bernhard, Stefan; Malliaras, George G. <b>Efficient Yellow Electroluminescence from a Single Layer of a Iridium Complex.</b> <i>Journal of the American Chemical Society</i> (2004), 126(9), 2763-2767.
28. PP	Slinker, Jason; Bernards, Dan; Houston, Paul L.; Abruña, Héctor D.; Bernhard, Stefan; Malliaras, George G. <b>Solid-state electroluminescent devices based on transition metal complexes.</b> <i>Chemical Communications (Cambridge, United Kingdom)</i> (2003), (19), 2392-2399.
27.	Bernhard, Stefan; Goldsmith, Jonas I.; Takada, Kazutake; Abruña, Héctor D. <b>Iron(II) and Copper(I) Coordination Polymers: Electrochromic Materials with and without Chiroptical Properties.</b> <i>Inorganic Chemistry</i> (2003), 42(14), 4389-4393.
26.	Barron, Jason A.; Bernhard, Stefan; Houston, Paul L.; Abruña, Héctor D.; Ruglovsky, Jennifer L.; Malliaras, George G. <b>Electroluminescence in Ruthenium(II) Dendrimers.</b> <i>Journal of Physical Chemistry A</i> (2003), 107(40), 8130-8133.
25.	Barron, Jason A.; Glazier, Samantha; Bernhard, Stefan; Takada, Kazutake; Houston, Paul L.; Abruña, Héctor D. <b>Photophysics and redox behavior of chiral transition metal polymers.</b> <i>Inorganic Chemistry</i> (2003), 42(5), 1448-1455.

24.	Bernhard, Stefan; Barron, Jason A.; Houston, Paul L.; Abruña, Héctor D.; Ruglovksy, Jennifer L.; Gao, Xicun; Malliaras, George G. <b>Electroluminescence in Ruthenium(II) Complexes.</b> <i>Journal of the American Chemical Society</i> (2002), 124(45), 13624-13628.
23.	Takada, Kazutake; Naal, Zeki; Park, Joo-Heon; Shapleigh, James P.; Bernhard, Stefan; Batt, Carl A.; Abruña, Héctor D. <b>Study of specific binding of maltose binding protein to pyrrole-derived bipyridinium film by quartz crystal microbalance.</b> <i>Langmuir</i> (2002), 18(12), 4892-4897.
22.	Bernhard, Stefan; Gao, Xicun; Malliaras, George G.; Abruña, Héctor D. <b>Efficient electroluminescent devices based on a chelated osmium(II) complex.</b> <i>Advanced Materials</i> (Weinheim, Germany) (2002), 14(6), 433-436.
21.	Bernhard, Stefan; Takada, Kazutake; Jenkins, David; Abruña, Héctor D. <b>Redox Induced Reversible Structural Transformations of Dimeric and Polymeric Phenanthroline-Based Copper Chelates.</b> <i>Inorganic Chemistry</i> (2002), 41(4), 765-772.
20.	Naal, Zeki; Bernhard, Stefan; Abruña, Héctor D.; Shapleigh, Jim P.; Park, Joo-Heon; Batt, Carl; Abruña, Héctor D. <b>TNT Biosensor Based on a Maltose Binding Protein Nitro-Reductase Fusion Immobilized on a Electropolymerized Film of a Pyrrole-Derived Bipyridinium</b> <i>Analytical Chemistry</i> , 2002, 74, 140-148.
19.	Bernhard, Stefan; Takada, Kazutake; Diaz, Diego J.; Abruña, Héctor D.; Muerner, Hansruedi. <b>Enantiomerically Pure Chiral Coordination Polymers: Synthesis, Spectroscopy, and Electrochemistry in Solution and on Surfaces.</b> <i>Journal of the American Chemical Society</i> (2001), 123(42), 10265-10271.
18.	Diaz, Diego J.; Bernhard, Stefan; Storrer, Gregory D.; Abruña, Héctor D. <b>Redox Active Ordered Arrays via Metal Initiated Self-Assembly of Terpyridine Based Ligands.</b> <i>Journal of Physical Chemistry B</i> (2001), 105(37), 8746-8754.
17.	Bernhard, Stefan; Omberg, Kristin M.; Strouse, Geoffrey F.; Schoonover, Jon R. <b>Time-Resolved IR Studies of [Re(LL)(CO)<sub>4</sub>]<sup>+</sup>.</b> <i>Inorganic Chemistry</i> (2000), 39(14), 3107-3110.
16.	Massick, Steven M.; Rabor, Julianne G.; Elbers, Stefan; Marhenke, Jon; Bernhard, Stefan; Schoonover, Jon R.; Ford, Peter C. <b>Time-Resolved Infrared Spectroscopic Study of Reactive Acyl Intermediates Relevant to Cobalt-Catalyzed Carbonylations.</b> <i>Inorganic Chemistry</i> (2000), 39(14), 3098-3106.
15.	Bally, Thomas; Bernhard, Stefan; Matzinger, Stephan; Roulin, Jean-Luc; Sastry, G. Narahari; Truttman, Leo; Zhu, Zhendong; Marcinek, Andrzej; Adamus, Jan; Kaminski, Rafal; Gebicki, Jerzy; Williams, Ffrancon; Chen, Guo-Fei; Fulscher, Markus P. <b>The radical cation of syn-tricyclooctadiene and its rearrangement products.</b> <i>Chemistry--A European Journal</i> (2000), 6(5), 858-868.
14.	Bally, Thomas; Bernhard, Stefan; Matzinger, Stephan; Truttman, Leo; Zhu, Zhendong; Roulin, Jean-Luc; Marcinek, Andrzej; Gebicki, Jerzy; Williams, Ffrancon; Chen, Guo-Fei; Roth, Heinz D.; Herbertz, Torsten. <b>The radical cation of anti-tricyclooctadiene and its rearrangement products.</b> <i>Chemistry--A European Journal</i> (2000), 6(5), 849-857.
13.	Belser, Peter; Bernhard, Stefan; Blum, Christine; Beyeler, Andreas; De Cola, Luisa; Balzani, Vincenzo <b>Molecular Architecture in the Field of Photonic Devices.</b> <i>Coordination Chemistry Reviews</i> , 1999, 190-192, 155-169.
12.	Bourassa, James; Lee, Brian; Bernhard, Stefan; Schoonover, Jon; Ford, Peter C. <b>Flash Photolysis Studies of Roussin's Black Salt Anion: Fe<sub>4</sub>S<sub>3</sub>(NO)<sub>7</sub>.</b> <i>Inorganic Chemistry</i> (1999), 38(25), 5926
11.	Diaz, Diego J.; Storrer, Gregory D.; Bernhard, Stefan; Takada, Kazutake; Abruña, Héctor D. <b>Ordered arrays generated via metal-initiated self-assembly of terpyridine-containing dendrimers and bridging ligands.</b> <i>Langmuir</i> (1999), 15(21), 7351-7354.
10.	Lorkovic, Ivan M.; Miranda, Katrina M.; Lee, Brian; Bernhard, Stefan; Schoonover, Jon R.; Ford, Peter C. <b>Flash Photolysis Studies of the Ruthenium(II) Porphyrins Ru(P)(NO)(ONO). Multiple Pathways Involving Reactions of Intermediates with Nitric Oxide.</b> <i>Journal of the American Chemical Society</i> (1998), 120(45), 11674-11683.
9.	Omberg, Kristin M.; Schoonover, Jon R.; Bernhard, Stefan; Moss, John A.; Treadway, Joseph A.; Kober, Edward M.; Dyer, R. Brian; Meyer, Thomas J. <b>Mid-Infrared spectrum of [Ru(phen)<sub>3</sub>]<sup>2+</sup>.</b> <i>Inorganic Chemistry</i> (1998), 37(14), 3505-3508.

8.	Schoonover, Jon R.; Omberg, Kristin M.; Moss, John A.; Bernhard, Stefan; Malueg, Vicki J.; Woodruff, William H.; Meyer, Thomas J. <b>Interpretation of the Time-Resolved Resonance Raman Spectrum of <math>[\text{Ru}(\text{Phen})_3]^{2+*}</math>.</b> <i>Inorganic Chemistry</i> (1998), 37(10), 2585-2587.
7.	Bridgewater, Jon S.; Lee, Brian; Bernhard, Stefan; Schoonover, Jon R.; Ford, Peter C. <b>Time-Resolved Infrared Spectral Studies of Photochemically Induced Oxidative Addition of Benzene to trans-RhCl(CO)(PMe<sub>3</sub>)<sub>2</sub>.</b> <i>Organometallics</i> (1997), 16(26), 5592-5594.
6.	Belser, Peter; Bernhard, Stefan; Jandrasics, Erik; von Zelewsky, Alex; De Cola, Luisa; Balzani, Vincenzo. <b>Synthesis and photophysical properties of chiral, binuclear metal complexes.</b> <i>Coordination Chemistry Reviews</i> (1997), 159, 1-8.
5.	Balzani, Vincenzo; Barigelletti, Francesco; Belser, Peter; Bernhard, Stefan; De Cola, Luisa; Flamigni, Lucia. <b>Rigid Rodlike Dinuclear Ru/Os Complexes of a Novel Bridging Ligand. Intercomponent Energy and Electron-Transfer Processes.</b> <i>Journal of Physical Chemistry</i> (1996), 100(42), 16786-16788.
4.	Bernhard, Stefan; Belser, Peter. <b>Preparation of 1,1,3,3-tetramethylcyclobutane-bridged ligands for the study of energy- and electron-transfer reactions.</b> <i>Synthetic Communications</i> (1996), 26(19), 3559-3563.
3.	Belser, Peter; Bernhard, Stefan; Guerig, Urs. <b>Synthesis of mono- and dialkylsubstituted 1,10-phenanthrolines.</b> <i>Tetrahedron</i> (1996), 52(8), 2937-44.
2.	Bernhard, Stefan; Belser, Peter. <b>Synthesis of new rigid, bridging ligands for the study of energy and electron-transfer reactions.</b> <i>Synthesis</i> (1996), (2), 192-4.
1.	De Cola, Luisa; Balzani, Vincenzo; Barigelletti, Francesco; Flamigni, Lucia; Belser, Peter; Bernhard, Stefan. <b>Photoinduced energy- and electron-transfer processes in dinuclear ruthenium(II) and/or osmium(II) complexes connected by a linear rigid bis-chelating bridge.</b> <i>Recueil des Travaux Chimiques des Pays-Bas</i> (1995), 114(11/12), 534-41.

## Patents

- Ordered Arrays via Metal-Initiated Self-Assembly of Ligand Containing Dendrimers and Bridging Ligands.  
Diego J. Díaz, Gregory D. Storrer, Stefan Bernhard, Kazutake Takada and Héctor D. Abruña. US Patent 6,224,935.
- Novel Materials for Solid State Light Emitting Devices Based on Dendrimers Modified with Pendant Luminescent Centers.  
Héctor D. Abruña, Stefan Bernhard and George Malliaras. Patent pending.

## Book Contributions

- “Redox-active Dendrimers in Solution and as Films on Surfaces”  
Kazutake Takada, Jonas I. Goldsmith, Stefan Bernhard and Héctor D. Abruña.  
*Encyclopedia of Electrochemistry*, Volume 10, A. J. Bard and M. Stratmann, editors,  
WILEY-VCH, Weinheim, Berlin, **2007**, pages 729-754.  
ISBN: 978-3-527-30402-8.

# Presentations

- Polymer Outreach Program, Cornell University, Ithaca, NY, USA (**invited**)  
May 22, 2000.
- Université de Lausanne, Lausanne, Switzerland (**invited**)  
June 19, 2000.
- Xerox, Palo Alto Research Center (PARC), Palo Alto, CA, USA (**invited**)  
July 7, 2000.
- New Mexico Institute of Mining and Technology, Socorro, NM, USA (**invited**)  
December 5, 2000.
- University of Fribourg, Fribourg, Switzerland (**invited**)  
January 22, 2001.
- Dartmouth College, Hanover, NH, USA (**invited**)  
January 30, 2001.
- University of Oregon, Eugene, OR, USA (**invited**)  
October 30, 2001.
- Worcester Polytechnic Institute, Worcester, MA, USA (**invited**)  
November 5, 2001.
- University of Washington, Seattle, WA, USA (**invited**)  
November 29, 2001
- Princeton University, Princeton, NJ, USA (**invited**)  
January 23, 2002
- University of North Carolina, Chapel-Hill, NC, USA (**invited**)  
January 30, 2002
- Bryn Mawr College, Bryn Mawr PA, USA (**invited**)  
November 13, 2003
- Stevens Institute of Technology, Hoboken, NJ, USA (**invited**)  
February 9, 2005
- ACS National Meeting, San Diego, USA (**contributed**)  
March 16, 2005
- University of New Mexico, Albuquerque, NM, USA (**invited**)  
April 1, 2005
- The College of Staten Island, Staten Island, NY, USA (**invited**)  
November 10, 2005
- PacifiChem, Honolulu, HI, USA (**contributed**)  
December 15, 2005
- PacifiChem, Honolulu, HI, USA (**invited**)  
December 17, 2005
- Electrochemistry Gordon Research Conference, Buellton, CA, USA (**invited**)  
February 15, 2006
- Cornell University, NY, USA (**invited**)  
September 21, 2006

- The Pennsylvania State University, University Park, PA, USA (**invited**)  
October 15, 2006
- University of California, Berkeley, CA, USA (**invited**)  
November 3, 2006
- California Institute of Technology, Pasadena, CA, USA (**invited**)  
November 6, 2006
- University of Southern California, Los Angeles, CA, USA (**invited**)  
November 7, 2006
- University of North Carolina, Chapel-Hill, NC, USA (**invited**)  
December 5, 2006
- University of Rochester, Rochester, NY, USA (**invited**)  
March 19, 2007
- Montana State University, Bozeman, MT, USA (**invited**)  
March 23, 2007
- University of Houston, Houston, TX, USA (**invited**)  
April 3, 2007
- Texas A&M University, College Station, TX, USA (**invited**)  
April 5, 2007
- Johns Hopkins University, Baltimore, MD, USA (**invited**)  
October 2, 2007
- University of Wyoming, Wyoming, WY, USA (**invited**)  
October 29, 2007
- Colorado State University, Fort Collins, CO, USA (**invited**)  
October 30, 2007
- Rutgers University, New Brunswick, NJ, USA (**invited**)  
February 12, 2008
- Northwestern University, Evanston, IL, USA (**invited**)  
February 19, 2008
- University of Wisconsin, Madison, WI, USA (**invited**)  
February 20, 2008
- ACS National Meeting, New Orleans, LA, USA (**invited**)  
April 8, 2008
- Temple University, Philadelphia, PA, USA (**invited**)  
May 15, 2008
- Organometallic Chemistry Gordon Research Conference, (**invited**)  
Salve Regina University, Newport, RI, USA, July 8, 2008
- 10<sup>th</sup> International Symposium „Activation of Dioxygen and Homogeneous Catalytic Oxidation”, San Servolo, Venice, Italy, July 21, 2008. (**semi-invited...**)
- 8<sup>th</sup> International Symposium on Functional  $\pi$ -Electron Systems, (**invited**)  
Graz, Austria, July 23, 2008
- University of Colorado, Boulder, CO, USA (**invited**)  
August 26, 2008
- Georgia Institute of Technology, Atlanta, GA, USA (**invited**)  
September 9, 2008

- New York University, New York City, NY, USA (**invited**)  
Special Lecture on “The Chemistry of Chocolate”  
September 18, 2008
- University of Washington, Seattle, WA, USA (**invited**)  
October 28, 2008
- St. John’s University, Queens, NY, USA  
Seventh Annual November 1 Chemistry Symposium - Photochemistry and Photophysics:  
Harnessing Light to Do Our Work (**invited**)  
November 1, 2008
- University of Zürich, Switzerland  
Short Course on the “Photochemistry of Materials”, (**invited**)  
November 17-20, 2008
- University of Fribourg, Switzerland (**invited**)  
November 17, 2008
- University of Zürich, Switzerland (**invited**)  
Special Lecture on “The Chemistry of Chocolate”  
November 18, 2008
- EMPA, Swiss Federal Laboratories for Materials Testing and Research, Dübendorf, CH  
November 20, 2008
- University of Basel, Switzerland (**invited**)  
November 21, 2008
- Washington State University, Pullman, WA, USA (**invited**)  
December 4, 2008
- University of Wyoming, Laramie, WY, USA (**invited**)  
December 11, 2008
- University of Utah, Salt Lake City, UT, USA (**invited**)  
December 15, 2008
- Westfälische Wilhelms-Universität, Münster, Germany (**invited**)  
January 16, 2009
- Michigan State University, East Lansing, MI, USA (**invited**)  
January 29, 2009
- Groningen University, Groningen, Netherlands (**invited**)  
January 19, 2009
- Carnegie Mellon University, Pittsburgh, PA, USA (**invited**)  
February 2, 2009
- Indiana University, Bloomington, IN, USA (**invited**)  
February 13, 2009
- Inorganic Reaction Mechanism Gordon Research Conference, (**invited**)  
Hotel Galvez, Galveston TX, March 9, 2009
- ACS National Meeting Salt Lake City, UT, USA (**invited**)  
March 24, 2009
- University of Delaware, Newark, DE, USA (**invited**)  
March 30, 2009
- University of Zürich, Switzerland (**invited**)  
April 2, 2009